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ИЗВЕСТИЯ КРЫМСКОЙ АСТРОФИЗИЧЕСКОЙ ОБСЕРВАТОРИИ

удк 523.98 Small-scale wave processes in the preflare plasmas of the loops in active region

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Wave generation due to the development of instabilities of the corresponding types in plasma of the loop structure in solar active region has been considered. We focus on the chromospheric part of the loop current circuit in the early stage of the flare process development. Kinetic Alfvén waves arise due to the existence of special gradients of the plasma density and temperature, large-scale electric field in a loop, etc. At the same time these waves can arise due to the wave decay into another kinetic Alfvén wave and ion sound wave. For the specific type of plasma equation of state and realistic values of the magnetic field amplitude the expressions for the growth rates have been studied and the estimates for all the possible types of instability development times have been obtained.